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EXAMINER

BROPHY, JAMIE LYNN

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 05/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/005,667

Applicant(s)

MA, OING

Examiner

J. L. Brophy

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 November 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

This office action is in response to the election filed 3/4/03.

Election/Restrictions

Applicant's election with traverse of claims 1-22 in Paper No. 3 is acknowledged. The traversal is on the ground(s) that the restriction requirement lacks reason and/or examples supporting a showing of the burden upon the office to examine both inventions at the same time, and therefore, in light of M.P.E.P. § 803, the requirement should be removed. This is not found persuasive because the "assumption" that a close relationship exists between the two inventions is apparent, however this in itself does not overcome the restriction requirement. According to M.P.E.P. § 803, the proper criteria between for a restriction is (1) the inventions must be independent and separate and (2) there must be a serious burden on the Examiner if the restriction is not required. The product and the process of manufacturing a semiconductor device are considered to be separate and independent by the Office. They are classified in two different art classifications and assigned to two different sets of Art Units. It would be a serious burden on the Examiner to examine two such distinct inventions despite the fact that they are so closely related.

The requirement is still deemed proper and is therefore made **FINAL**.

Claims 23-28 are withdrawn from further consideration by the Examiner, 37 C.F.R. § 1.142(b), as being drawn to a non-elected invention, the requirement having been traversed in Paper No. 3.

Specification

The disclosure is objected to because of the following informalities: on p. 5, line 1, "pads 59" should be "pads 39".

Appropriate correction is required.

Claim Objections

Claims 3-11 and 22 are objected to because of the following informalities:

In claim 3, line 1, the antecedent basis for the limitation "a MEMS device" is unclear since the limitation "a MEMS device" is recited in claim 1, line 3. In claim 3, line 1; "a MEMS device" should be "the MEMS device".

In claim 3, line 1, the antecedent basis for the limitation "a substrate" is unclear since the limitation "a substrate" is recited in claim 1, line 3. In claim 3, line 1, "a substrate" should be "the substrate".

In claim 6, line 1, the antecedent basis for the limitation "a MEMS device" is unclear since the limitation "a MEMS device" is recited in claim 1, line 3. In claim 6, line 1, "a MEMS device" should be "the MEMS device".

In claim 6, line 1, the antecedent basis for the limitation "a substrate" is unclear since the limitation "a substrate" is recited in claim 1, line 3. In claim 6, line 1, "a substrate" should be "the substrate".

In claim 7, line 1, the antecedent basis for the limitation “an integrated circuit” is unclear since the limitation “an integrated circuit” is recited in claim 1, line 4. In claim 7, line 1, “an integrated circuit” should be “the integrated circuit”.

In claim 9, line 1, the antecedent basis for the limitation “an integrated circuit” is unclear since the limitation “an integrated circuit” is recited in claim 1, line 4. In claim 9, line 1, “an integrated circuit” should be “the integrated circuit”.

In claim 9, lines 2-3, the antecedent basis for the limitation “a MEMS device” is unclear since the limitation “a MEMS device” is recited in claim 1, line 3. In claim 9, lines 2-3, “a MEMS device” should be “the MEMS device”.

In claim 9, line 3, the antecedent basis for the limitation “a substrate” is unclear since the limitation “a substrate” is recited in claim 1, line 3. In claim 9, line 3, “a substrate” should be “the substrate”.

In claim 10, line 1, the antecedent basis for the limitation “an integrated circuit” is unclear since the limitation “an integrated circuit” is recited in claim 1, line 4. In claim 10, line 1, “an integrated circuit” should be “the integrated circuit”.

In claims 10 and 11, it is unclear if the ring layer is formed on the substrate or bonded to the substrate since claim 10 recites “forming a ring layer on the substrate” and claim 11 recites “bonding the ring layer to the substrate”.

In claim 22, line 2, “sealed cavity” should be “the sealed cavity”.

In claim 22, line 3, the antecedent basis for the limitation “a controlled environment” is unclear since the limitation “a controlled environment” is recited in claim

Art Unit: 2822

22, line 2. In claim 22, line 3, "a controlled environment" should be "the controlled environment".

Appropriate correction is required.

Please note that dependent claims are objected to because the claims from which they depend have been objected to.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 10-14, 19 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Schubert et al (5,721,162).

Schubert et al teach a method that comprises forming a MEMS device 14 on a substrate 12;

Forming an integrated circuit 16, including form a ring layer 44; and

Coupling the substrate 12 to the integrated circuit 16 to form a sealed cavity that includes the MEMS device 14, wherein coupling the substrate 12 to the integrated circuit 16 includes bonding the ring layer 44 to the substrate 12 in a controlled environment (col. 8, lines 49-50 and col. 9, lines 1-9),

Wherein coupling the substrate 12 to the integrated circuit 16 includes coupling the substrate to a chip, and

Wherein the controlled environment is hermetic or a vacuum environment (col. 8, lines 49-50 and col. 9, lines 1-9).

See Figs. 1, 8 and 9 and accompanying text.

Claims 1-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Tilmans et al (6,297,072).

Tilmans et al teach a method that comprises forming a MEMS device on a substrate 162;

Forming a ring layer on the substrate that surrounds the MEMS device;

Forming an integrated circuit 161;

Forming a ring layer on a surface of the integrated circuit; and

Coupling the substrate 162 to the integrated circuit 161 in a controlled environment by bonding the ring layer on the substrate 162 to the ring layer on the integrated circuit 161 to form a sealed cavity that includes the MEMS device,

Wherein coupling the substrate 162 to the integrated circuit 161 includes coupling the substrate 162 to a chip,

Wherein the ring layers are electrically conductive,

Wherein forming the MEMS device on the substrate includes depositing a wettable layer onto the ring layer,

Wherein forming the integrated circuit 161 includes forming solder bumps within the ring layer on the substrate and forming the MEMS device on the substrate 162 includes forming pads on the substrate, and coupling the substrate to the integrated circuit includes bonding the pads on the substrate to the solder bumps on the integrated circuit, and

Wherein controlled environment is hermetic or a vacuum environment (col. 1, lines 14-18 and col. 5, lines 36-41).

See, for example, Figs. 16-18 and accompanying text.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. L. Brophy whose telephone number is (703) 308-6182. The examiner can normally be reached on M-F (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (703) 308-4905. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

J.L.B.

jlb
May 20, 2003


AMIR ZARABIAN
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